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DEET & IR3535

DEET as an Insect Repellent

DEET (N,N-Diethyl-3-methylbenzamide) is one of the most established active ingredients for insect repellents. It’s been extensively studied and is known for providing long-lasting protection against mosquitoes, ticks, and other biting insects. Products formulated with DEET have a consistent track record for both efficacy and safety when used according to label directions. Studies indicate that even at lower concentrations, DEET can offer protection for several hours, and higher concentrations tend to provide longer-lasting coverage. This reliability makes DEET a go-

to choice, especially in environments where the risk of insect-borne disease is high .

Avon Skin So Soft and Its Active Ingredient

Avon Skin So Soft is a household name originally known for its moisturizing bath oil and lotion. Interestingly, while the classic formulation is celebrated primarily for skin care, Avon has also leveraged the brand’s reputation by marketing insect repellent products under a similar name—namely, Avon Skin So Soft Bug Guard. The key here is that the bug-repellent line is formulated with a specific active ingredient.

According to a Tennessee Poison Center report, the active ingredient in Avon Skin So Soft Bug Guard is **IR3535** (ethyl butyl acetylaminopropionate) rather than DEET . IR3535 is also recognized as a safe, low-toxicity repellent and has been used in various formulations. Laboratory studies have shown that at comparable concentrations (around 7.5%), IR3535 can deliver a level of protection similar to that of DEET—typically providing roughly 3–4 hours of repellent effect under controlled conditions. However, there is some conflicting data, and certain studies indicate that the duration of protection with IR3535 may be slightly shorter or vary more than that observed with DEET formulations. In other words, while IR3535 is

effective, DEET is still acclaimed for offering longer-lasting and more robust protection in similar testing conditions .

Side-by-Side Considerations

Characteristic	**DEET**	**IR3535 (Avon Skin So Soft Bug Guard)**
Primary Use	Widely used as a standalone insect repellent	Formulated in products like Bug Guard; classic Skin So Soft is for moistening

| **Efficacy Duration** | Generally longer-lasting even at lower % concentrations | Comparable at ~7.5% but sometimes noted to be slightly shorter |

| **Efficacy in Studies** | Consistently high performance across diverse tests | Effective in lab tests but with more variability in duration |

| **Safety Profile** | Long track record; safe when used as directed | WHO-designated safe; low toxicity with reported mild irritation |

It’s essential to note that **Avon Skin So Soft Bath Oil**—the original product—is not designed or marketed as an insect repellent. Its famous “bug-repellent” reputation comes more from anecdotal

observations and non-repellent formulations that might incidentally reduce insect bites (possibly due to a pleasant scent or minor oily barrier) rather than from a repellent action per se. Only the specially formulated **Avon Skin So Soft Bug Guard** claims insect repellent efficacy due to the inclusion of IR3535.

Conclusion

- **For maximum and consistent insect protection:**

  DEET-based repellents generally provide a longer duration of effect and have been repeatedly validated in scientific studies.

- **For those who prefer formulations linked to skincare or desire alternative active ingredients:**

Avon’s insect repellent line, featuring IR3535 in Bug Guard, is a valid option. However, its performance may not match DEET in terms of lasting protection under all conditions.

This means that if you’re choosing a product purely on the grounds of known, longer-lasting efficacy—especially in high-risk or prolonged exposure situations—a DEET-based repellent might be the better choice. On the other hand, if you’re looking for something that can double as a skin moisturizer (with bonus bug-repellent properties) or prefer a different chemical profile, Avon Skin So Soft Bug Guard could serve your needs, given its IR3535 formulation.

Below is an overview of the safety profiles for DEET and IR3535, along with a side-by-side comparison that might help you

determine which active ingredient best aligns with your personal needs and usage conditions.

DEET Safety Profile

- **Long Track Record:**

  DEET (N,N-Diethyl-3-methylbenzamide) has been used since the 1940s and is widely regarded as safe when used exactly as directed. Its long history means that its benefits and potential drawbacks (such as minor skin and eye irritation) are well documented.

- **Irritation and Exposure:**

  Although very effective, DEET can sometimes cause mild skin irritation, particularly at higher concentrations or when applied to

broken skin. Accidental eye contact may also lead to discomfort. Additionally, there are rare concerns regarding neurotoxicity, but as studies show, these risks are minimal when DEET is used according to the label instructions.

- **Material Compatibility:**

  A practical consideration is DEET’s tendency to damage plastics, synthetic fabrics, and other materials. This means that if you’re using or carrying items made of these materials, you should use DEET cautiously or choose alternatives.

IR3535 Safety Profile

- **Established Safety with a Modern Alternative:**

  IR3535 (ethyl butyl acetylaminopropionate) has been evaluated as a safe alternative to DEET. Although its use in consumer products is comparatively more recent, safety data and stability profiles indicate that it is very well tolerated when used as directed.

- **Mild Irritation Concerns:**

  Like DEET, IR3535 may lead to minor eye irritation in some cases. However, it is generally associated with lower incidences of skin irritation. Because it shows minimal systemic toxicity, IR3535 is often preferred by individuals who are seeking a repellent with fewer concerns related to material degradation or chemical harshness on the skin.

- **Material Safety:**

IR3535 is less likely than DEET to harm plastics and other materials, making it a more versatile option if the integrity of your gear or devices is a priority.

Side-by-Side Comparison

Aspect	**DEET**	**IR3535**
Historical Use & Track Record	Over 70 years of use with extensive safety data; effective when used per label	More modern alternative with strong safety evaluations

| **Skin/Eye Irritation** | Can cause mild irritation on sensitive skin or if accidental eye contact occurs | Generally low incidence of skin irritation; occasional minor eye irritation |

| **Material Compatibility** | Can damage plastics, synthetic fabrics, and certain rubbers | Typically kinder to materials, reducing risks of degradation |

| **Systemic Toxicity / Neurotoxic Concerns** | Minimal risk when used as directed; concerns arise mainly with misuse | Minimal systemic toxicity observed, making it a safer alternative for some users |

In Summary

- **DEET** remains the benchmark for effective insect repellents. When used as directed, it is safe for most people, though users should be mindful of potential skin or eye irritation and the risk it poses to certain materials.

- **IR3535** offers a similarly effective level of protection with a slightly more favorable profile in terms of material safety and irritation for some users. It’s particularly appealing if you prefer an alternative with modern safety evaluations and fewer concerns over collateral damage to your gear.

Let's take a closer look at how these popular repellent active ingredients compare in terms of efficacy, safety, and usability.

Overview of Each Ingredient

- **DEET:**

  DEET has earned its reputation over decades of use. It consistently delivers robust, long-lasting protection against mosquitoes, ticks, and other pests. Although generally safe when used as directed, DEET can sometimes cause minor skin irritation or eye discomfort, and it has the

drawback of damaging some plastics and synthetic materials. This makes it extremely effective yet a little finicky when it comes to protecting your gear or electronics .

- **IR3535:**

  IR3535 is a modern alternative formulated to provide a similar level of protection as DEET but with a lower risk of irritation and material degradation. It generally has a milder profile, making it appealing for users with sensitive skin. While effective under most circumstances, some studies suggest its protection might be slightly more variable in duration compared to DEET .

- **Picaridin:**

  Picaridin (also known as Icaridin) offers a compelling combination of high efficacy and a friendlier user experience. It often performs close to DEET in terms of repellency and endurance against biting insects while typically producing less odor and causing fewer skin irritations. Moreover, Picaridin is gentle on plastics and synthetic materials, making it a popular choice for outdoor enthusiasts who carry equipment that could otherwise be affected by DEET .

- **Natural Repellents:**

  Natural repellents—including those based on essential oils like oil of lemon eucalyptus—appeal

to users who prefer botanical ingredients. Although such formulations tend to offer a more pleasant scent and reduced chemical exposure, they often fall short in longevity and breadth of protection. For example, oil of lemon eucalyptus can be effective but generally requires more frequent reapplication and may not provide the extensive coverage seen with synthetic repellents .

Side-by-Side Comparison

| Aspect | **DEET** | **IR3535** |

Picaridin |

Natural Repellents |

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| **Efficacy & Duration** | Proven high efficacy with long-lasting protection. | Effective with protection duration comparable to DEET, though sometimes slightly more variable. | Comparable to DEET; excellent protection with reliable duration. | Generally effective against mosquitoes but shorter duration; requires frequent reapplication. |

| **Skin & Eye Irritation** | Can cause mild irritation, particularly on sensitive or broken skin. |

Mild irritation in rare cases; typically well tolerated. | Generally low incidence of skin irritation and a milder scent. | Often gentler on the skin, though individual sensitivities may occur. |

| **Material Compatibility** | Known to damage plastics and synthetic materials. | Less likely to affect materials such as plastics. | Does not degrade plastics or synthetic fabrics. | Typically safe for materials, though formulations vary widely. |

| **User-Friendliness** | Long-established; widely trusted but with a stronger odor. | A modern alternative that balances efficacy with a gentler profile. | Pleasant to apply, nearly odorless, and ideal for multi-purpose use. | Attractive to those

seeking natural ingredients, though performance may lag. |

Key Takeaways

- **DEET** is still the benchmark if top-tier, long-lasting insect protection is your priority, especially in high-risk areas.
- **IR3535** provides a balanced option, offering dependable protection with fewer concerns about skin irritation and material impact.

- **Picaridin** gets high marks for being almost as effective as DEET while offering a more user-friendly experience with less odor and minimal impact on gear.

- **Natural repellents** are a good choice for those who lean toward botanical ingredients and a milder chemical profile, provided you’re comfortable with reapplying more frequently and potentially shorter efficacy periods.

Each option has its merits, and the best choice often depends on your specific situation—whether you’re embarking on a long outdoor adventure, need to protect sensitive gear, or prefer a natural approach.